



In This Issue

PFP cleans out tanks	2
New saw reduces risks	4
Winter awareness	5
Benefits enrollment starts	6

Volume 4, No. 33 October 23, 2006

Transfer system begins pumping K East Basin sludge

The new hose-in-hose (HIH) transfer system began operating last week in the 100-K Area, transferring sludge collected in an underwater tank in the K East Basin to a waiting tank in the K West Basin.

As of this morning, the process was continuing to transfer sludge from the first of four tanks. The K Basin Closure (KBC) Project vice president Pete Knollmeyer

said. "We were well prepared...[and] this is quite an accomplishment given the complexity of the nuclear process we started up. I am very proud of the professionalism and teamwork demonstrated by the KBC Project workers."

The HIH system consists of pumps, four booster stations; electrical systems; three control panels; and the double-walled, flexible hose itself. The sturdy hose is made of steel-reinforced rubber and was designed with a very small inner diameter – one and one-quarter inches – to maintain the velocity needed to keep the sludge in suspension as it moves. The hose lies above ground except in two small sections where it travels under 100-K Area internal roads, and is equipped with a heat trace for freeze protection. Any given piece of sludge moves through the hose at about 15 feet per second, and travels between the two K Basins in just under three minutes.

Designing and building the system was a long, complicated road for Gene Roosendaal, K West Basin sludge project manager. He started working on the hose project when the concept was first developed in early 2004. "It's a unique system, using first-of-a-kind transfer technology," says Roosendaal.

Although design of the HIH system built

upon previous experience with transferring dense, radioactive slurries and sludges in Hanford's tank farms, the K Area system took the concepts further. "It's a complex system because we are operating several pumps in series, using three control panels at different locations. We have to interface with both of the K Basins, and we use some of the essential systems in each of them, so there is a lot of coordination. In addition, the K Basins sludge is abrasive – it's physically hard and sharp – because it contains tiny particles of uranium. The particles must stay suspended in the hose during transfer, and achieving this condition while minimizing pump erosion is very challenging."

Installation of the hose system occurred during the summer and fall of 2005, followed by a flocculant injection system placed in the K West Basin. The flocculant system was designed to cause sludge particles to come out of suspension after transfer, by binding to each other and settling to the bottom of the receiving containers in the K West Basin. "We needed to minimize any spreading or clouding that might occur in that basin," he says.

An extensive testing program throughout the winter and spring of 2006 fol-



Transfer ... (Continued from page 1)

lowed installation, and boosted the confidence of Roosendaal and HHH Subproject Manager Jennifer Nuzum. “We did everything we could possibly do during the testing phase except actually put sludge in the line,” Roosendaal says. “The one question we couldn’t completely answer before the real transfer occurred was how the sludge would behave as it came out of the first underwater tank. Would it maintain reasonable consistency, or would it have hardened or come out in lumps?”

As it turns out, the sludge was relatively easy to mobilize into a slurry leaving the KE tank. It slightly diminished water clarity in the KW Basin as it entered the waiting underwater tank there. However, the impact was minimal.

“We had lots of oversight and support from the Department of Energy (DOE), Fluor Hanford senior management, and Fluor Corporation,” says Nuzum. “These individuals had high expectations, but were 100% invested in our success. We became better as a result of their oversight.”

Next came the training of operating personnel in the summer of 2006. “I refused to compress the training schedule in any way,” says K West Basin Closure Director Jim Mathews. “I’ve seen many readiness programs in my years here in the 100 Areas [24 years thus far] and I know that well-trained personnel provide the crucial component in making a system work.”

During the training, says Nuzum, “it was awesome to see the operators and others gain confidence and come to own the system. Their confidence grew, and their mastery of all the tasks.” In the contractor and DOE Operational Readiness Reviews of September and October, the skills of K Area workers showed to good advantage. Operator knowledge, pride, professionalism and communication were repeatedly noted as excellent.

The HHH system was conceived to allow the K East Basin to be emptied of its primary radiological inventory and prepared for demolition first because it is the more contaminated and leak-prone of the two K Basins. Transfer of the sludge from the other three underwater tanks in the KE Basin is expected to be completed this coming winter. The transfers will have to be scheduled around upcoming operations of the KW Basin sludge collection system, which is due to begin operating next month. Transfer of a small amount of “final pass” sludge yet to be collected in the KE Basin will occur next spring. ■

Michele Gerber, Communications

To see video of the sludge vacuuming and transfer work, go to www.hanford.gov and click on the “Hanford Site News” link: New video of transferring radioactive sludge available (Click on the “Search” button, and scroll down to select video).



Pumps, like this one, and booster stations are part of the hose-in-hose transfer